ORDER NO. GAD84072184C2

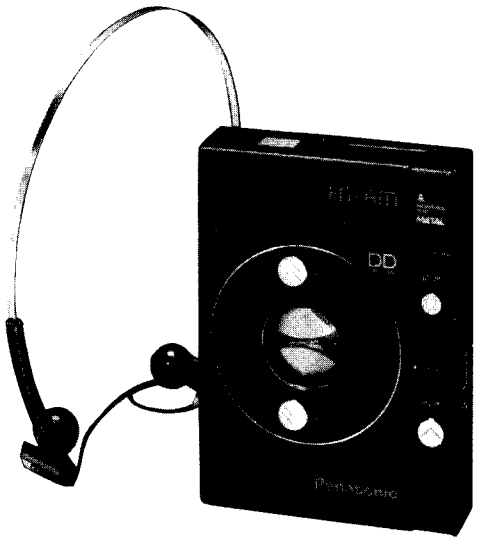
Service Manual

Radio Cassette

RX-S40

(Black)

FM-AM-FM Stereo Radio Cassette Player



This is the Service Manual for the following areas.

Z . . . For all European areas except United Kingdom.

G . . . For Germany.

■ SPECIFICATIONS

General:

Power Requirement:	Battery: 3 V (Two "AAA" Size Penlight Batteries) (Panasonic UM-4 or equivalent) AC adaptor, RD-9443HSXG
Power Output:	20 mW (10 mW×2)...RMS (max.)
Input: DC IN:	3 V
Output:	HEADPHONES: 32Ω
Dimensions:	69 mm(W)×111 mm(H)×24.9 mm(D) (2¾×4⅜×1)"
Weight:	215 g without batteries

Radio Section:

Radio Frequency Range:	FM; 87.5~108 MHz AM; 520~1610 (577~186 m)
Intermediate Frequency:	FM; 10.7 MHz AM; 455 kHz
Sensitivity:	FM; 2.2 μV/0.5 mW output AM; 224 μV/m/0.5 mW output

Tape Deck Section:

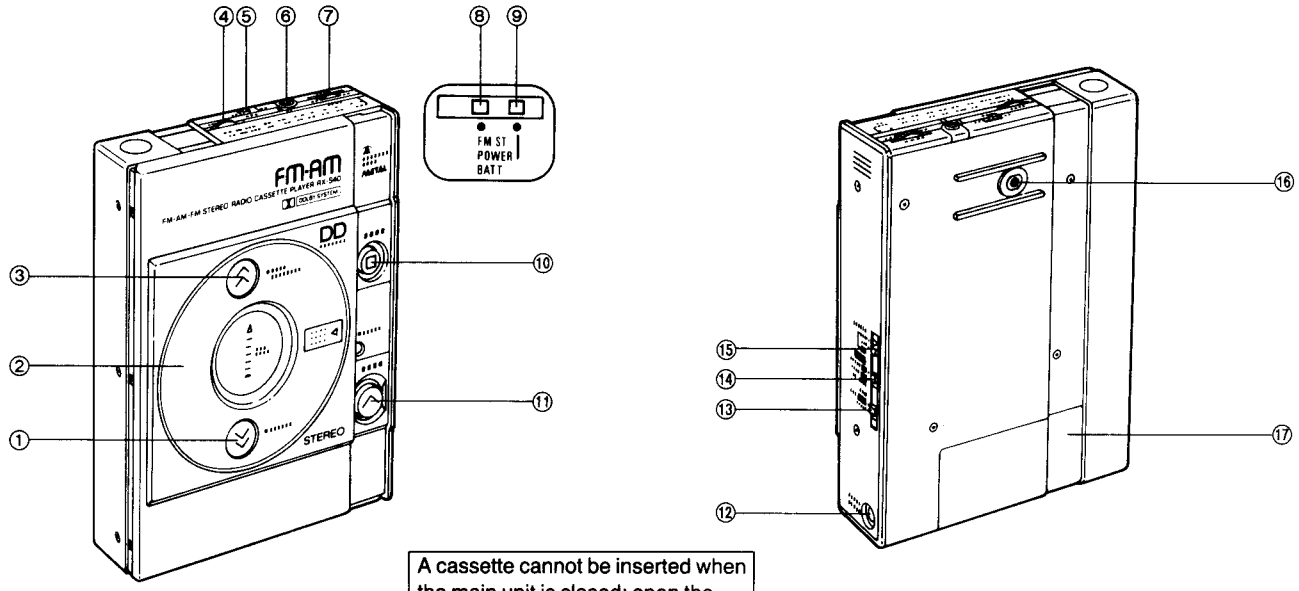
Frequency Response:	50~14,000 Hz (with Normal tape) 50~14,000 Hz (with CrO_2 tape) 50~14,000 Hz (with Metal tape)
Tape Speed:	4.8 cm/s, (1⅞ ips)
Program Time:	1 hour with C-60 cassette tape
Track System:	4-track 2-channel stereo recording and playback

Specifications are subject to change without notice.

Panasonic

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

LOCATION OF CONTROLS AND COMPONENTS



A cassette cannot be inserted when the main unit is closed; open the main unit all the way.

① Rewind Button (REWIND)
② Cassette Compartment
③ Fast Forward Button (FAST FORWARD)
④ Tuning Control (TUNING)
⑤ Band Selector (BAND) [FM, AM]
⑥ Headphone Jack (∩) [32Ω, ∅2.5]
⑦ Volume Control (VOLUME)
⑧ FM Stereo Indicator (FM ST)
⑨ Power/Battery Check Indicator (POWER/BATT)
⑩ Stop Button (STOP)
⑪ Playback Button (PLAY)
⑫ DC Input Jack (DC IN 3 V ⊖-⊕)
⑬ Tape Selector (TAPE) [CrO_2/METAL, NORMAL]
⑭ Dolby Noise Reduction Switch/FM Mode Selector (DOLBY NR/FM MODE)
⑮ Function Selector (SELECTOR) [RADIO, TAPE/OFF]
⑯ Belt Clipper Fixation Hole
⑰ Battery Compartment

*"Dolby" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation. Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation.

■ Mechanism

(To Fast Forward or Rewind)
When the fast forward button is pressed, the tape will quickly fast forward, and when the rewind button is pressed, the tape will quickly rewind. When the stop button is pressed (STOP), the tape will stop.
Caution:
- The tape will stop when the tape end is reached in fast forward or rewind, but because the power is still on, be sure to press the stop button before turning off the power.

  If an operation button (fast forward, rewind, playback) is pressed at the end of fast forward or rewind without pressing the stop button, the motor will not turn. Press an operation button only after pressing the stop button.
- When the playback button (PLAY) is pressed during fast forward or rewind, the tape may become entangled, so be sure to press the playback button after pressing the stop button.

(Auto-Stop Function)
When the end of the tape is reached during playback, the auto-stop function will work, the playback button will automatically be released, and the power will be turned off. However, the auto-stop function does not work for fast forward or playback, so be sure to press the stop button (STOP) and turn off the power.
Caution:
When the operation selector is set to RADIO during tape playback, the motor will stop, but the playback button will not be released. Press the stop button to release it.

DISASSEMBLY INSTRUCTIONS

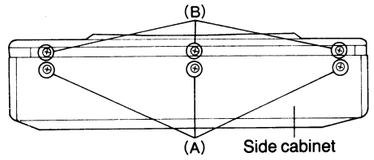


Fig. 1

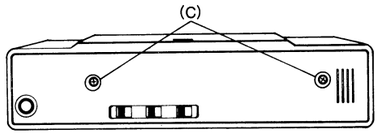


Fig. 2

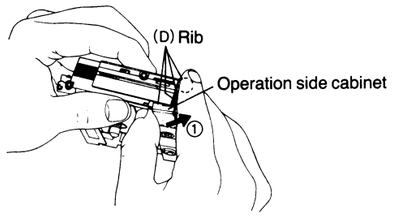


Fig. 3

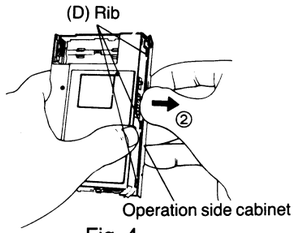


Fig. 4

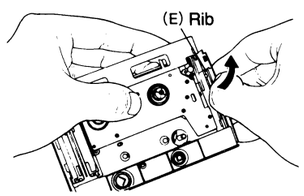


Fig. 5

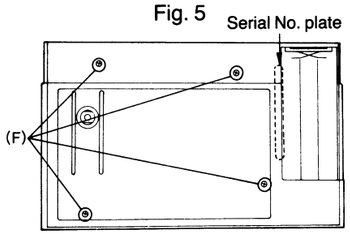


Fig. 6

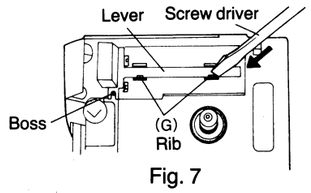


Fig. 7

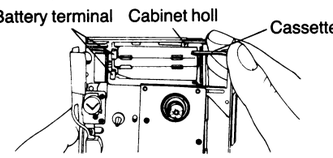


Fig. 8

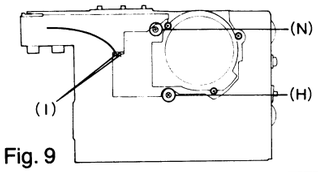


Fig. 9

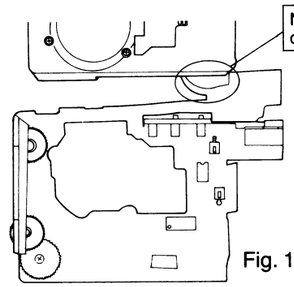
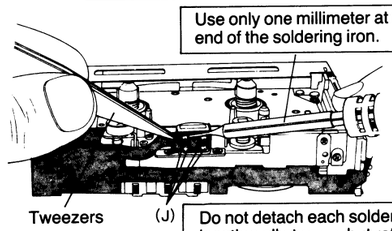


Fig. 10


Use only one millimeter at the end of the soldering iron.
Tweezers
(J)
Do not detach each soldered location all at once, but rather touch the soldering iron against each of the terminals in order three or four times, and remove the part with a pair of tweezers.
Fig. 11

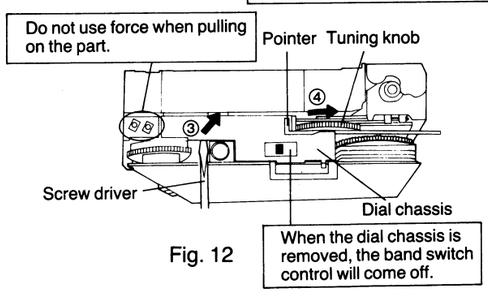


Fig. 12

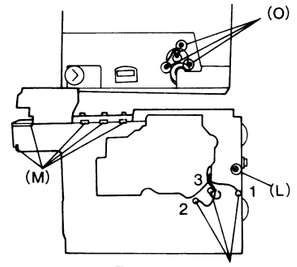


Fig. 13

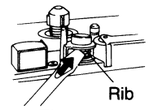


Fig. 13-1

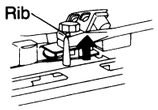


Fig. 13-2

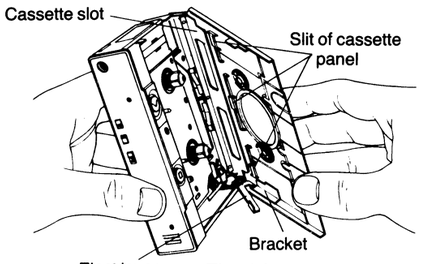


Fig. 14

Ref. No.	Procedure	Shown in Fig.—.	To remove—.	Remove—.
1	1, 2	—	Side Cabinet	Slid the main unit.
2		1		Screw (16×1.8) ..... (A)×3
3	1~3	1	Cassette Panel (※1)	Screw (16×1.8) ..... (B)×3
4	4, 5	2	Operation Side Cabinet (※2)	Screw (16×3) ..... (C)×2
5		3, 4		Remove the Operation Side Cabinet rib in the direction of arrow ①, ② ..... (D)×7
6	1~7	—	Upper Caibnet (※3)	Set the pointer at the maximum frequency
7		5		Remove the rib in the direciton of the arrow, and remove the upper panel ..... (E)×1
8	1~13	—	Cabinet (※4, 5)	Remove the battery cover and remove the batteries.
9		6		Screw (6×3) ..... (F)×4
10		7		Push the tab in the direction of the arrow... (G)×2
11		7		Remove the Boss, and remove the Lever.
12		8		Remove the caibnet while removing the battery terminals from the cabinet.
13		8		Remove the cassette slot through the hole in the cabinet.
14	1~15	9	Printed Circuit Board	Screw (16×2.5) ..... (H)×1
15		9		Remove the solder ..... (I)×2
16	1~16	11	When completely removing the mechanism and printed circuit board	
17	1~13, 17	12	Dial chassis (※6, 7)	Remove the dial chassis in the direction of arrow ③.
18	1~19	13	Antenna Holder	Remove the solder ..... (K)×3
19		13		Screw (17×4) ..... (L)×1
20	1~16, 20	13	Knob Holder	Remove the rib ..... (M)×5
21	1~16, 21, 22	9	Motor	Screw (16×2.5) ..... (N)×1
22		13		Screw (14×2.5) ..... (O)×3
23	1~6, 23	13-1, 13-2	Button (stop, play)	Remove the button rib in the direction of arrow.

■ Cautions when Attaching

※1. As shown in Fig. 14, connect the metal bracket on the cassette lid to the ejector lever, and insert the cassette slot in the groove of the cassette lid.
※2. When attaching the sides of the cabinet, attach the upper panel first, and insert the tab shown in Figs. 3 and 4.
※3. Insert the rib shown in Fig. 5 in the upper panel of the cabinet.
※4. As shown in Fig. 8, connect the cabinet to the battery terminals and insert the cassette slot in the hole in the cabinet.
※5. Attach the lever so that the screw shown in Fig. 7 enters the depression in the lever.
※6. Insert the dial chassis so that the band switch lever will enter the knob.
※7. Turn the channel selector knob in the direction of the arrow ④ shown in Fig. 12, insert the needle between the knob and the dial chassis, and adjust it to the position shown in the figure.

Replacing the RHC and Chip Parts

■ Replacing the RHC

(Removal) Cut the terminals on the RHC using an automatic knife as shown in Fig. 1. (Be careful not to cut the plating on the circuit board.)

(Attachment) Use a soldering iron of 40 watts or less, and do not touch it against any of the terminals for more than three seconds. Do not apply the soldering iron for more than two seconds when soldering on the top of the RHC.

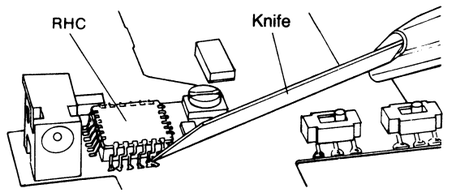


Fig. 1

■ Replacing Chip Parts

(Removal) Hold the chips with tweezers as shown in Fig. 2, and alternately touch the soldering iron (for less than three seconds) to the soldered part on either side of the chip. Gradually lift the chip up and remove it.
Caution: Removing the chips all at once will break the plating on the circuit board.

(Attachment) Carefully solder the replacement parts to the same location (do not permit the parts to shift).
Note: If allowed to shift, the part may interfere with the mechanism.
***Use only one millimeter at the end of the soldering iron.**

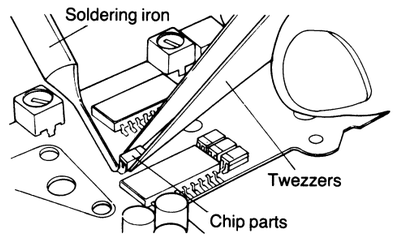


Fig. 2

Checking the Mechanism and Printed Circuit Board

■ Checking the Mechanism

- With the cabinet removed as shown in Fig. 1, the mechanism can be checked and adjusted.
- Checking the Mechanism Separately
  As shown in Fig. 2, apply 3 volts DC to the D•D. MOTOR (the motor will turn without pressing the playback button) and the printed circuit board, and push the microwswitch in the direction of the arrow.

■ Checking the Mechanism

- As shown in Fig. 3, apply 3 volts DC form the DC IN jack, attach an oscillator to the head attachment, and push the microswitch in the direction of the arrow.

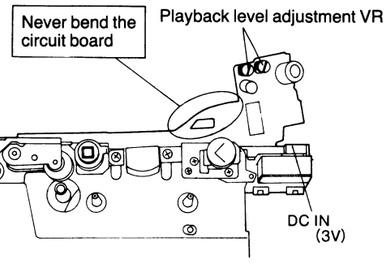


Fig. 1

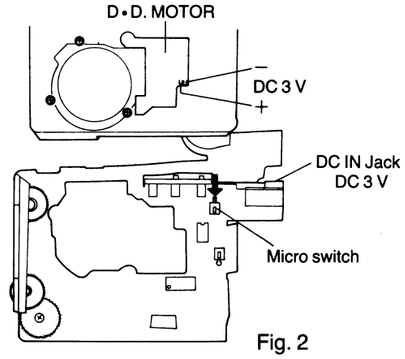


Fig. 2

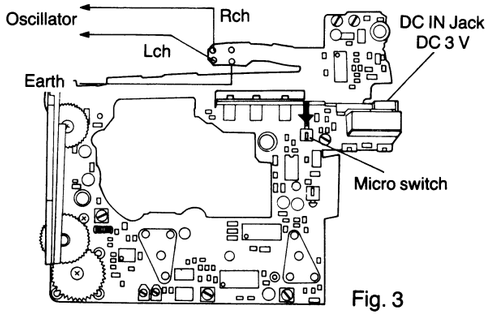
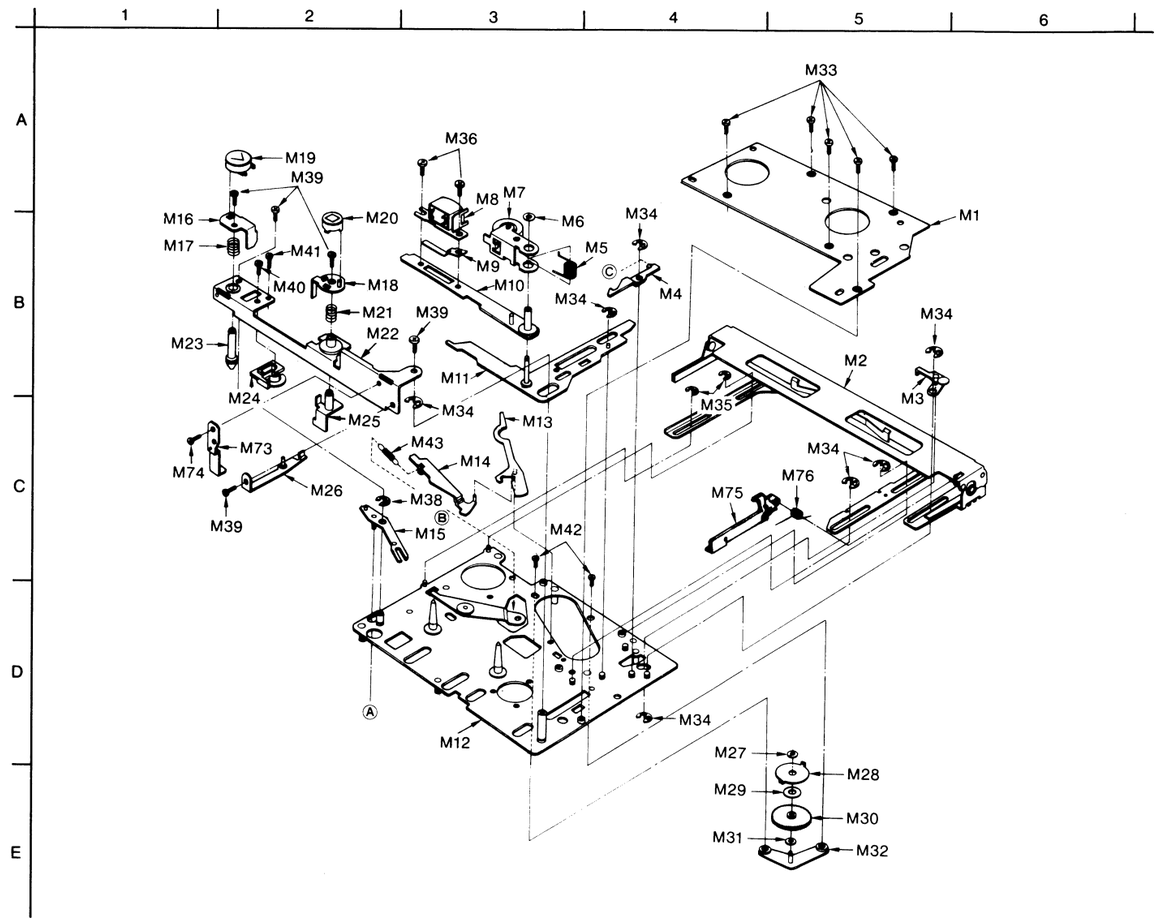
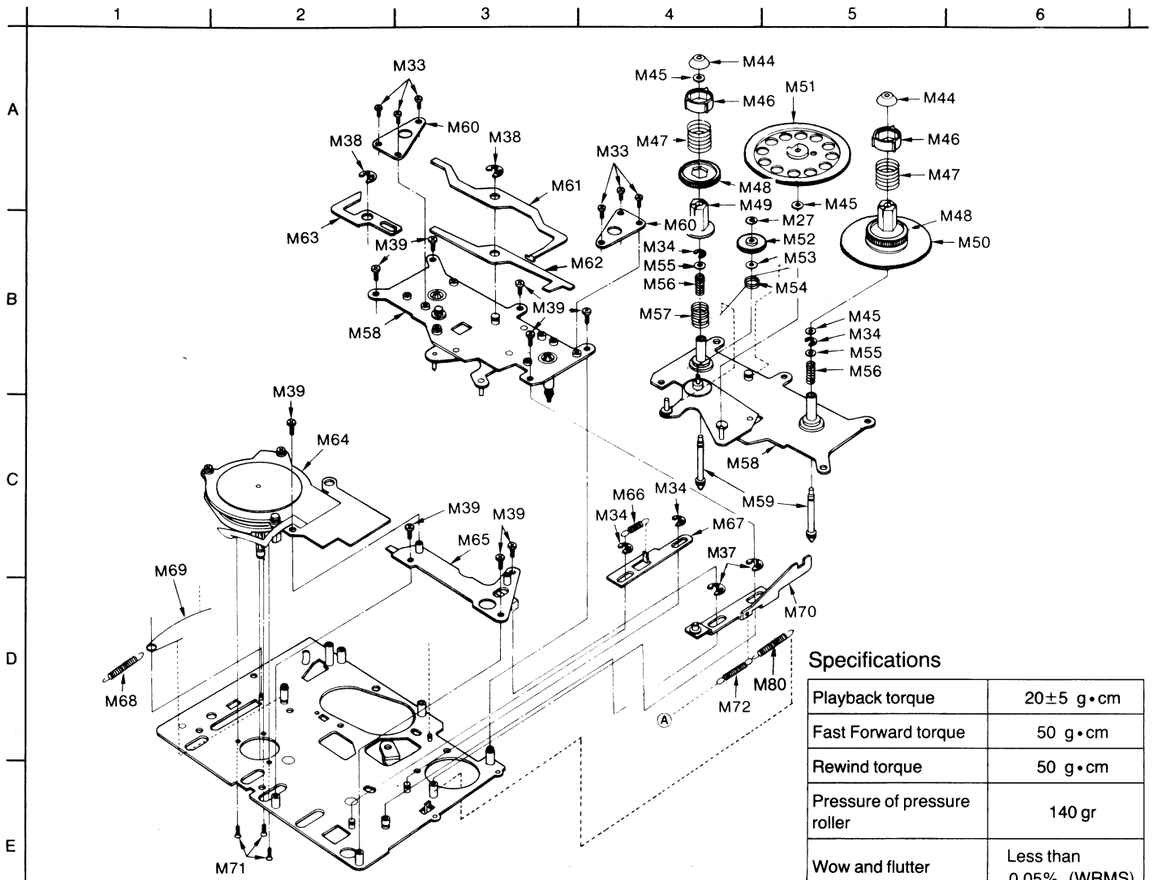


Fig. 3

MECHANISM PARTS LOCATION



Ref. No.	Part. No.	Part Name & Description	Ref. No.	Part. No.	Part Name & Description	Ref. No.	Part. No.	Part Name & Description
	MECHANICAL PARTS		M13	RFY379Z	Auto Stop Sensor	M25	RFY384Z	Stop Lever Press Down Ass'y
M1	RFE153Z	Ornaments Plate	M14	RFY380Z	Lever, Auto Stop Sensor	M26	RFS419Z	Stand-by Spring Ass'y
M2	RFE154Z	Cassette Slot Ass'y	M15	RFY381Z	Head Shift Lever Ass'y	M27	RFN125Z	Washer
M3	RFY377Z	Push up Lever Ass'y	M16	RFY382Z	Lever, Playback	M28	RFE160Z	Auto Stop Board
M4	RFY378Z	Head Lock Lever	M17	RFS417Z	Spring, Playback Lever	M29	RFN126Z	Washer
M5	RFS415Z	Spring, Pinch Roller	M18	RFY383Z	Lever, Stop	M30	RFG63Z	Gear, Auto Stop
M6	RFN124Z	Washer	M19	RBC613Z	Playback Button	M31	RFN127Z	Washer
M7	RFR22Z	Pinch Roller Arm Ass'y	M20	RBC614Z	Stop Button			
M8	RJH2E13Z	Head	M21	RFS418Z	Spring, Stop Lever	M32	RFE161Z	Auto Stop Gear Board
M9	RFS416Z	Spring, Azimuth Adjustment				M33	XSN14+2	Screw
M10	RFE155Z	Head Operation Board Ass'y	M22	RFE157Z	Playback/Stop Board	M34	XUC15FT	Circlip
M11	RFE156Z	Head Board Ass'y	M23	RFE158Z	Axis, Playback Button	M35	XUC12FT	Circlip
			M24	RFE159Z	Playback Operation Board Push Up	M36	XSN2+3	Screw, Head M'tg
M12	RFU35Z	Mechanism Base Ass'y						



Specifications

Playback torque	20±5 g•cm
Fast Forward torque	50 g•cm
Rewind torque	50 g•cm
Pressure of pressure roller	140 gr
Wow and flutter	Less than 0.05% (WRMS)

Ref. No.	Part. No.	Part Name & Description
M37	XUC25FT	Circlip
M38	XUC2FT	Circlip
M39	XSN16+25	Screw
M40	XTN16+3J	Screw, Playback Operation Board M'tg
M41	XSN14+25	Screw, Playback Operation Board M'tg
M42	XSN16+16	Screw, Auto Stop Board M'tg
M43	RFS421Z	Spring, Auto Stop
M44	RFE162Z	Reel Cap
M45	RFN128Z	Washer
M46	RFJ39Z	Drive Cam
M47	RFS422Z	Spring, Drive Cam
M48	RFG64Z	Gear, FF/REW
M49	RFJ40Z	Stop Drive Cam
M50	RFG65Z	Gear, Playback
M51	RFG66Z	Gear, Drive
M52	RFG67Z	Gear, Middle
M53	RFN129Z	Washer
M54	RFS420Z	Spring, Drive Gear Board
M55	RFN130Z	Washer
M56	RFS423Z	Spring, Reel
M57	RFS424Z	Spring, Back Tension
M58	RFD183Z	Sub, Board Ass'y
M59	RFE163Z	Axis, Reel
M60	RFE164Z	Support Board
M61	RFY385Z	Lever, Switch
M62	RFE165Z	FF/REW Lock Board
M63	RFE166Z	FF Lock Board
M64	RFM33Z	Motor Ass'y
M65	RFE167Z	Playback/Stop Support Board Ass'y
M66	RFS425Z	Playback Moving Lever
M67	RFY386Z	Playback Moving Lever
M68	RFS426Z	Spring, Head Playback
M69	RFS427Z	Spring, Head Board Return
M70	RFY387Z	Moving Lever
M71	XSS14+25	Screw, Motor Ass'y M'tg
M72	RFS428Z	Spring, Moving Lever
M73	RMD3088Z	Bracket
M74	XQNR16+A25FN	Screw, Bracket M'tg
M75	RUB305Z	Lever, Eject
M76	RUS579Z	Spring, Eject Lever
M80	RFS468Z	Spring

MEASUREMENTS AND ADJUSTMENTS

■ ALIGNMENT INSTRUCTIONS

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

1. Set volume control to maximum.
2. Set band switch to AM or FM ST.
3. Set function selector to radio.
4. Set power source voltage to 3 V DC.
5. Output of signal generator should be no higher than necessary to obtain an output reading.

■ AM ALIGNMENT

	BAND	SIGNAL GENERATOR or SWEEP GENERATOR CONNECTIONS	SIGNAL GENERATOR or SWEEP GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR (ELECTRONICS VOLTMETER or SCOPE)	ADJUSTMENT	REMARKS
		AM-IF ALIGNMENT					
(1)	AM	Fashion loop of several turns of wire and radiate signal into loop of receiver.	455 kHz 30% Mod. at 400 Hz	Point of non-interference. (on/ about 600 kHz)	Output meter across voice coil.	T1 (AM IFT)	Adjust for maximum output.
		AM-RF ALIGNMENT					
(2)	AM	〃	511 kHz	Tuning capacitor fully closed.	〃	L6 (AM OSC Coil)	Adjust for maximum output.
(3)	AM	〃	1,650 kHz	Tuning capacitor fully open.	〃	CT4 (AM OSC Trimmer)	〃
(4)	AM	〃	550 kHz	Tune to signal.	〃	(•1) L5 (AM ANT Coil)	Adjust for maximum output. Adjust L5 by moving coil bobbin along ferrite core.
(5)	AM	〃	1,500 kHz	〃	〃	CT5 (AM ANT Trimmer)	Adjust for maximum output. Repeat steps (2)~(5).

(•1) Cement antenna bobbin with wax after completing alignment.

■ FM ALIGNMENT

	BAND	SIGNAL GENERATOR or SWEEP GENERATOR CONNECTIONS	SIGNAL GENERATOR or SWEEP GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR (ELECTRONICS VOLTMETER or SCOPE)	ADJUSTMENT	REMARKS
		FM-IF ALIGNMENT (•2)					
(1)	FM	High side thru. 0.001 µF to test point ▼. Negative side to test point E.	10.7 MHz (SWP.)	Point of non-interference. (on/ about 90 MHz)	Connect vert. amp. of scope to test point ▼. Negative side to test point E.	CT3 (FM 1st IFT)	Adjust for maximum amplitude. (Refer to fig. 4).
(2)	FM	〃	〃	〃	〃	T2 (FM 2nd IFT)	Adjust for maximum amplitude. (Refer to fig. 5).
		FM-RF ALIGNMENT					
(3)	FM	Connect to test point ▼ through FM dummy antenna. Negative side to test point E.	85 MHz	Variable capacitor fully closed.	Output meter across voice coil.	L3 (FM OSC Coil)	(•3) Adjust for maximum output.
(4)	FM		108.5 MHz	Variable capacitor fully open.	〃	CT1 (FM OSC Trimmer)	〃
(5)	FM		106 MHz	〃	〃	CT2 (FM ANT Trimmer)	(•3) Adjust for maximum output Repeat steps (3)~(5).

(•2) When aligning FM IF, please set the input level of the sweep generator bigger position. Because the input signal come from the antenna side.

(•3) Three output responses will be present; proper tuning is the center frequency.

■ SEPARATION ALIGNMENT

ITEM	FM SIGNAL GENERATOR SOURCE CONNECTION	EQUIPMENT CONNECTION ELECTRONIC COUNTER	ADJUSTMENT	SPECIFICATION	REMARKS
Adjustment of pilot signal.	98 MHz, 60 dB (CW) Connect to test point ▼ through FM dummy antenna. Negative side to test point E.	E...(+) ▼...(−)	VR1	19 kHz	Adjust VR1, for 19 kHz (±150 Hz) reading on electronics counter.

■ AUDIO

IT
Azimut
Playba level
Tape speed

■ ADJUS

Note: Plea

MEASUREMENTS AND ADJUSTMENTS

■ ALIGNMENT INSTRUCTIONS

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

1. Set volume control to maximum.
2. Set band switch to AM or FM ST.
3. Set function selector to radio.
4. Set power source voltage to 3 V DC.
5. Output of signal generator should be no higher than necessary to obtain an output reading.

■ AM ALIGNMENT

	BAND	SIGNAL GENERATOR or SWEEP GENERATOR CONNECTIONS	SIGNAL GENERATOR or SWEEP GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR (ELECTRONICS VOLTMETER or SCOPE)	ADJUSTMENT	REMARKS
		AM-IF ALIGNMENT					
(1)	AM	Fashion loop of several turns of wire and radiate signal into loop of receiver.	455 kHz 30% Mod. at 400 Hz	Point of non-interference. (on/ about 600 kHz)	Output meter across voice coil.	T1 (AM IFT)	Adjust for maximum output.
		AM-RF ALIGNMENT					
(2)	AM	〃	511 kHz	Tuning capacitor fully closed.	〃	L6 (AM OSC Coil)	Adjust for maximum output.
(3)	AM	〃	1,650 kHz	Tuning capacitor fully open.	〃	CT4 (AM OSC Trimmer)	〃
(4)	AM	〃	550 kHz	Tune to signal.	〃	(•1) L5 (AM ANT Coil)	Adjust for maximum output. Adjust L5 by moving coil bobbin along ferrite core.
(5)	AM	〃	1,500 kHz	〃	〃	CT5 (AM ANT Trimmer)	Adjust for maximum output. Repeat steps (2)~(5).

(•1) Cement antenna bobbin with wax after completing alignment.

■ FM ALIGNMENT

	BAND	SIGNAL GENERATOR or SWEEP GENERATOR CONNECTIONS	SIGNAL GENERATOR or SWEEP GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR (ELECTRONICS VOLTMETER or SCOPE)	ADJUSTMENT	REMARKS
		FM-IF ALIGNMENT (•2)					
(1)	FM	High side thru. 0.001 µF to test point ⑦. Negative side to test point ⑤.	10.7 MHz (SWP.)	Point of non-interference. (on/ about 90 MHz)	Connect vert. amp. of scope to test point ⑦. Negative side to test point ⑤.	CT3 (FM 1st IFT)	Adjust for maximum amplitude. (Refer to fig. 4).
(2)	FM	〃	〃	〃	〃	T2 (FM 2nd IFT)	Adjust for maximum amplitude. (Refer to fig. 5).
		FM-RF ALIGNMENT					
(3)	FM	Connect to test point ⑦ through FM dummy antenna. Negative side to test point ⑤.	85 MHz	Variable capacitor fully closed.	Output meter across voice coil.	L3 (FM OSC Coil)	(•3) Adjust for maximum output.
(4)	FM		108.5 MHz	Variable capacitor fully open.	〃	CT1 (FM OSC Trimmer)	〃
(5)	FM		106 MHz	〃	〃	CT2 (FM ANT Trimmer)	(•3) Adjust for maximum output Repeat steps (3)~(5).

(•2) When aligning FM IF, please set the input level of the sweep generator bigger position. Because the input signal come from the antenna side.

(•3) Three output responses will be present; proper tuning is the center frequency.

■ SEPARATION ALIGNMENT

ITEM	FM SIGNAL GENERATOR SOURCE CONNECTION	EQUIPMENT CONNECTION ELECTRONIC COUNTER	ADJUSTMENT	SPECIFICATION	REMARKS
Adjustment of pilot signal.	98 MHz, 60 dB (CW) Connect to test point ⑦ through FM dummy antenna. Negative side to test point ⑤.	⑤...(+) ②...(−)	VR1	19 kHz	Adjust VR1, for 19 kHz (±150 Hz) reading on electronics counter.

■ AUDIO ADJUSTMENT

ITEM	INPUT	MEASUREMENT POINT	SPECIFICATION	ADJUSTMENT POINT	REMARKS
Azimuth	QZZCFM (8 kHz, −20 dB)	Headphone Jack (AC voltmeter & Oscilloscope)	Maximum output.	Azimuth screw	Playback mode (Refer to Fig. 2)
Playback level	QZZCFM (315 Hz 0 dB)	⑧...(+) Lch ②...(−) Lch ③...(+) Rch ②...(−) Rch	72±4 mV	VR2 (Lch) VR3 (Rch)	Playback mode
Tape speed	QZZCWAT (3 kHz)	Headphone (Frequency counter)	3000±90 Hz	Motor Volume	Playback mode (Refer to Fig. 3)

■ ADJUSTMENT PARTS LOCATION

Note: Please refer to circuit board wiring view in which test point are located.

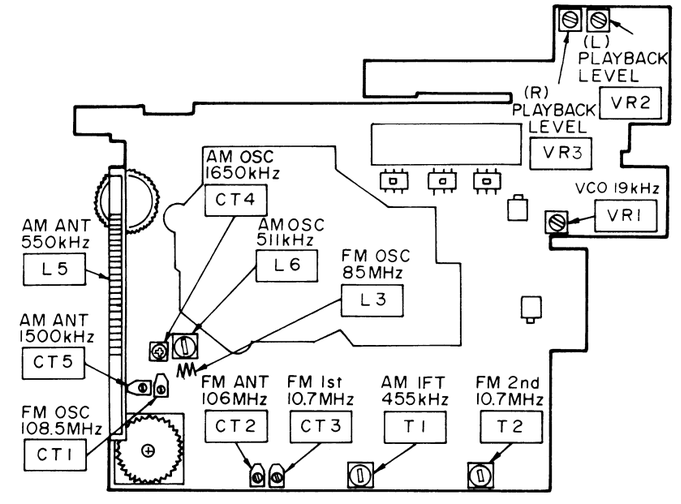


Fig. 1

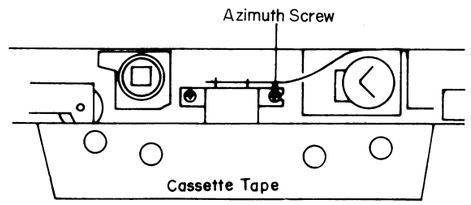


Fig. 2

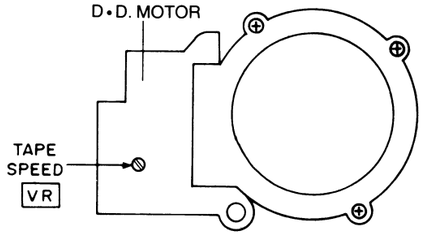


Fig. 3

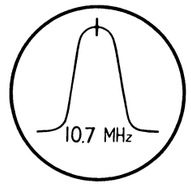


Fig. 4

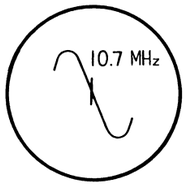
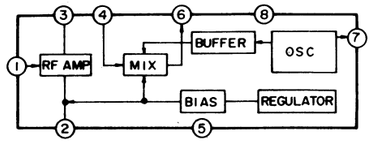


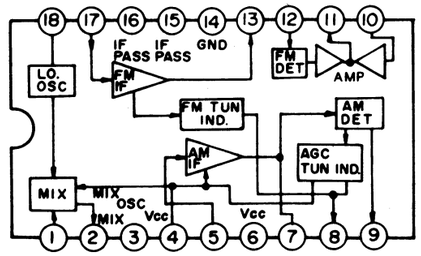
Fig. 5

■ IC BLOCK DIAGRAM

IC1 RVITA7358F

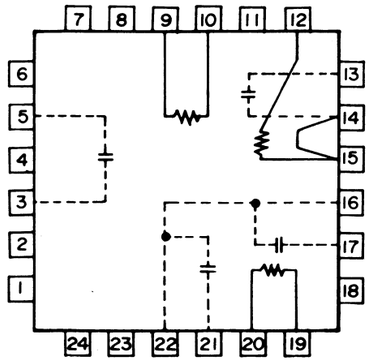


IC2 AN7226S

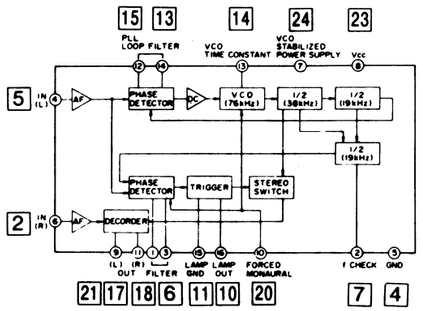


IC3 RXRA3AA

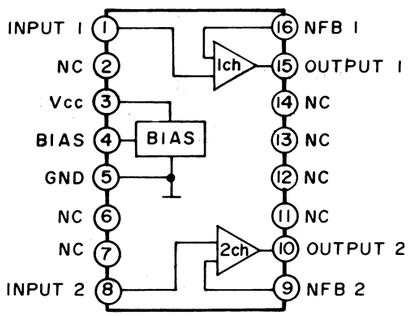
Laminated capacitor network & resistor block



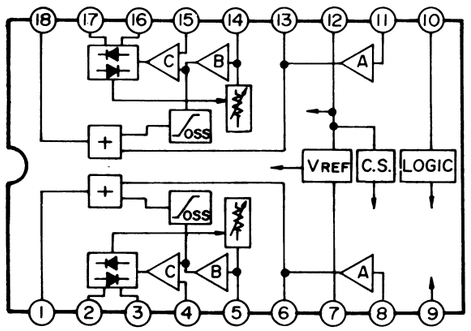
IC BLOCK



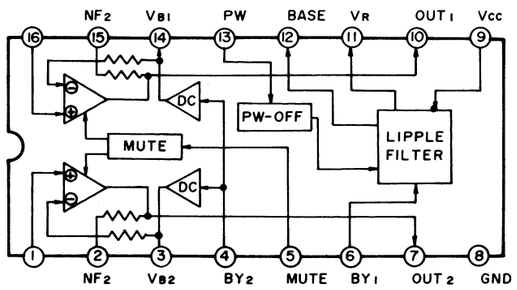
IC4 RVIBA3304F



IC5 AN7375S



IC6 RVITA7688FS



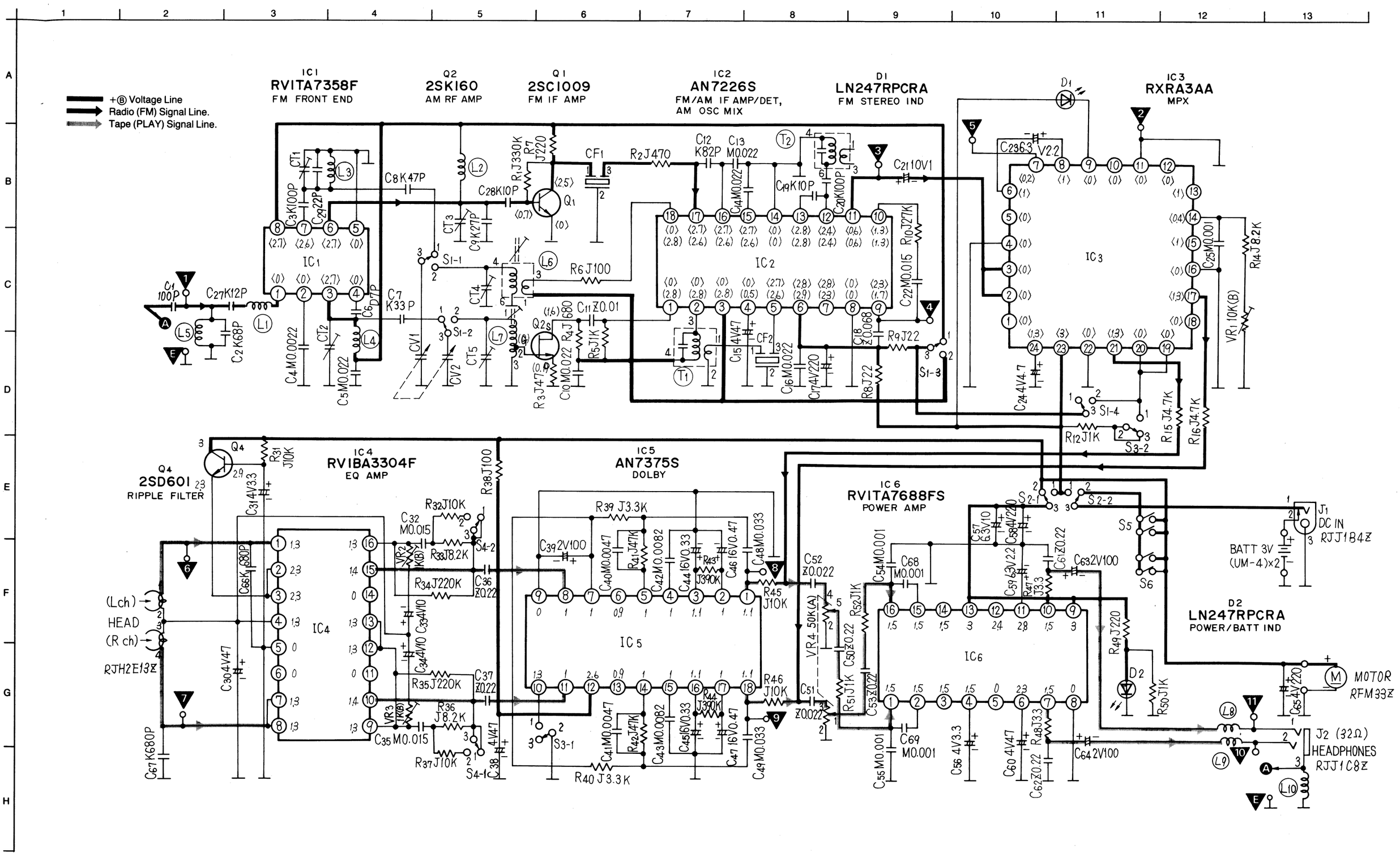
SCHEMATIC DIAGRAM MODE

+Ⓑ Voltage Line
Radio (FM) Signal Line.
Tape (PLAY) Signal Line.

IC1 RVITA7358F FM FRONT END
Q2 2SK160 AM RF AMP
Q1 2SC1009 FM IF AMP
IC2 AN7226S FM/AM IF AMP/DET, AM OSC MIX

Q4 2SD601 RIPPLE FILTER
IC4 RVIBA3304F EQ AMP
IC5 AN7375S DOLBY

SCHEMATIC DIAGRAM MODEL RX-S40



CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM MODEL RX-S40

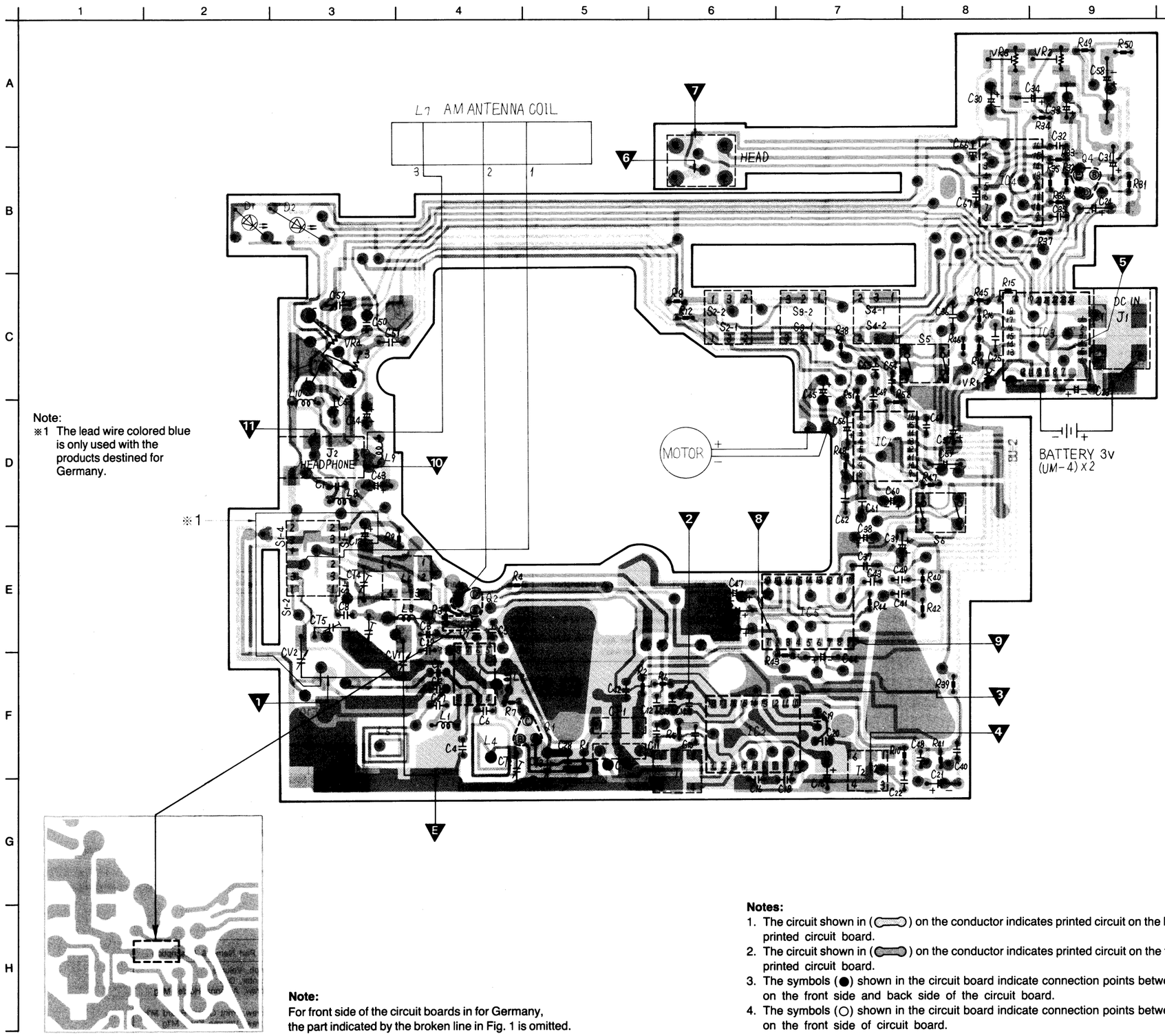
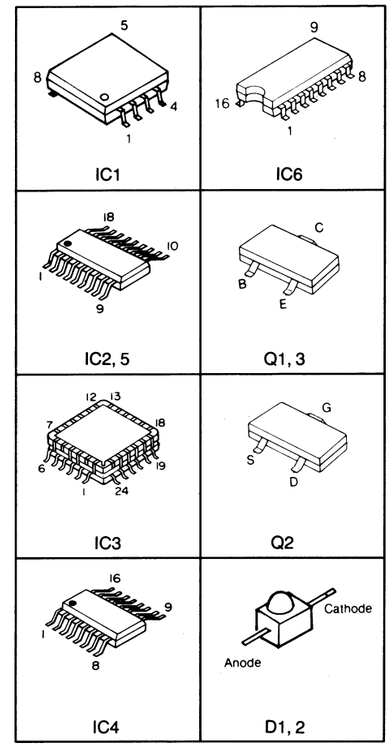
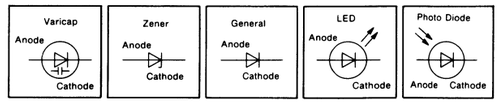


Fig. 1

Note:
For front side of the circuit boards in for Germany, the part indicated by the broken line in Fig. 1 is omitted.





Notes:

1. The circuit shown in ( ) on the conductor indicates printed circuit on the back side of the printed circuit board.
2. The circuit shown in ( ) on the conductor indicates printed circuit on the front side of the printed circuit board.
3. The symbols (●) shown in the circuit board indicate connection points between conductors on the front side and back side of the circuit board.
4. The symbols (○) shown in the circuit board indicate connection points between conductors on the front side of circuit board.

Notes:

1. S1-1~S1-4: Band switch in "FM" position. (1...FM, 2...AM,)
2. S2-1, S2-2: Function switch in "TAPE/OFF" position. (1...RADIO, 2...TAPE/OFF)
3. S3-1, S3-2: Dolby NR/FM Mode switch in "STEREO/IN" position. (1...MONO/OUT, 3...STEREO/IN)
4. S4-1, S4-2: Tape select switch in "NORMAL" position. (1...NORMAL, 2...CrO_2/METAL)
5. S5: Play switch in "OFF" position.
6. S6: FF, rewind switch in "OFF" position.
7. VR1: VCO oscillator frequency adjust VR.
8. VR2, 3: Playback level (L, R) adjustment VR.
9. VR4: Volume control.
10. The mark (▼) shows test point e.g.▼1=test point 1.
11. DC voltage measurement are taken with electronics voltmeter from negative terminal of battery.
    < >...FM position, ( )...AM position.
    No mark...Playback position.
12. Battery current: No signal ..... 25 mA
    Maximum output (radio) ..... 75 mA
    Maximum output (tape) ..... 150 mA

■ ELECTRICAL PARTS LIST

Numbering System of Resistor

Example

ERD	25	F	J	101
Type	Wattage	Shape	Tolerance	Value (100Ω)
ERX	2	AN	J	2R2
Type	Wattage	Shape	Tolerance	Value (2.2Ω)

Resistor Type	Wattage	Tolerance
ERD: Carbon	10 : 1/8 W	J : ±5%
ERO: Metal Film	12 : 1/2 W	
ERX: Metal Film	25 : 1/4 W	
ERQ: Fuse Type Metal	1 : 1 W	
RRD: Carbon (Chip Type)	18 : 1/8 W	

Numbering System of Capacitor

Example

ECKD	1H	102	Z	F
Type	Voltage	Value (1000 pF)	Tolerance	Peculiarity
ECEA	50	M	R47	
Type	Voltage	Peculiarity	Value (0.47 µF)	

Capacitor Type	Voltage		Tolerance
	ECEA Type	Other	
ECEA: Electrolytic	0J : 6.3 V	2H : 500 V DC	C : ±0.25 pF
ECCD: Ceramic	1A : 10 V	1 : 100 V	J : ±5%
ECKD: Ceramic	1C : 16 V	DKC : 400 V AC	K : ±10%
ECQM: Polypyester	1E : 25 V		Z : +80%, −20%
ECQP: Polypropylene	1H : 50 V		P : +100%, −0%
ECET: Eletrolytic	1V : 35 V		
ECEA□□□N: Non Polar Electrolytic	50 : 50 V		
QCU□: Ceramic (Chip Type)	25 : 25 V		
ECUX: Ceramic (Chip Type)	16 : 16 V		

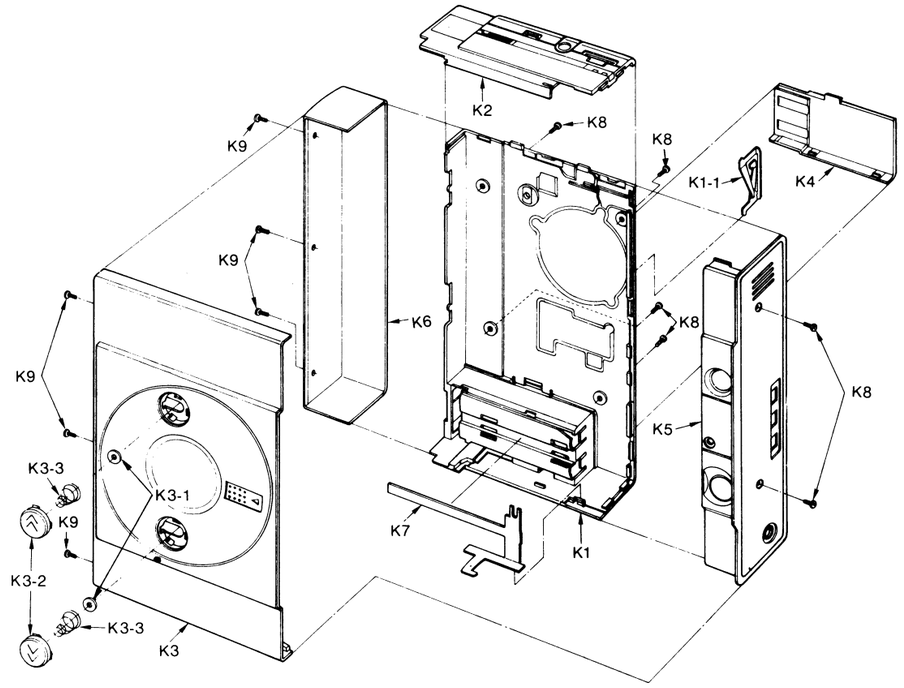
Notes:
[ZK]...For all European areas
except United Kingdom. (Black)
[GK]...For Germany. (Black)

Ref. No.	Part. No.	Part Name & Description
	INTEGRATED CIRCUITS	
IC1	RVITA7358F	IC
IC2	AN7226S	IC
IC3	RXRA3AB	IC
IC4	RVIBA3304F	IC
IC5	AN7375S	IC
IC6	RVITA7688FS	IC
	TRANSISTORS	
Q1	2SC1009F4	Transistor (Si)
Q2	2SK160K5	Transistor (Ge)
Q4	2SD601R	Transistor (Si)
	DIODES & RECTIFIERS	
D1,2	LN247RPCRA	LED (FM ST, POWER/BATT IND)
	COILS	
L1	ELJFAR22K	Choke Coil
L2	ELJFA3R3K	Choke Coil
L3 [ZK]	RLO4Y39	Oscillator Coil, AM
L3 [GK]	RL04N194	Oscillator Coil, AM
L6	RLO2A14	Oscillator Coil, AM
L7	RLF2Y41	Antenna Coil, AM
L8~10	ELJFA1R0K	Choke Coil
	TRANSFORMERS	
T1	RLI2A26	IFT, AM
T2	RLI4A30	IFT, AM
	VARIABLE CAPACITORS	
VC1,2	RCV2L3D	Variable Capacitor
CT1 [ZK]	RCVCTZ20C	Variable Capacitor
CT1 [GK]	RCVTSW3H	Variable Capacitor
CT2,3	RCVCTZ30C	Variable Capacitor
CT4	RCVTZB10X	Trimmer Capacitor
CT5	RCVCTZ10A	Variable Capacitor
	VARIABLE RESISTORS	
VR1	EVM17SX00B14	Variable Resistor, 10 kΩ (B)
VR2,3	EVM17SX00B13	Variable Resistor, 1 kΩ (B)
VR4	EVUBRAT50A54	Variable Resistor, 50 kΩ (A)
	CERAMIC FILTERS	
CF1	RVFC107WMR	Ceramic Filter
CF2	RVFPFA455A	Ceramic Filter
	SWITCHES	
S1	RSS2D21Z	Switch, Band
S2~4	RSS2B48Z	Switch, Function, Mode, Tape
S5	RSH1B06Z	Switch, Playback
S6	RSH1B05Z	Switch, FF/REW
	JACKS	
J1	RJJ1B4Z	Jack, DC IN
J2	RJJ1C8Z	Jack, Headphone

Ref. No.	Part. No.
	CAPACITORS
C1,3,20	RCUX1H101K
C2	RCUX1H680KC
C4	RCUX1H222MD
C5,10,13,14,16	RCUX1E223MD
C6	RCUX1H070DC
C7	RCUX1H330KC
C8	RCUX1H470KC
C9	RCUX1H270KC
C11	RCUX1H103ZF
C12	RCUX1H820K
C15,30,38	ECEV0GV470R
C17, 58, 65	ECEAOGKS221
C18	RCUX1E683ZF
C19,28	RCUX1H100KC
C21	ECSE1AT1050L
C22,32,35	RCUX1E153MD
C23	ECSE0JT225SL
C24	ECSE0GT4750R
C25	ECUX1H102KR
C27	RCUX1H120KC
C29 [ZK]	RCUX1H220KC
C29 [GK]	RCUV1H330KS
C31,56	ECSE0GT3350R
C33,34	ECSE0GT106M8
C36,37,50~53,61,62	ECUX1E224ZF
C39,63,64	ECEV0DV101R
C40,41	RCUX1H472MD
C42,43	RCUX1H822MD
C44	ECSE1CT3340L
C45	ECSE1CM334R
C46,47	ECSE1CM474R
C48,49	RCUX1E333MD
C54,55,68,69	RCUX1H102MD
C57	ECSE0JT106R
C59	ECSE0JT225L5
C60	ECEA0GKS470
C66,67	RCUX1H681K
	RESISTORS
R1	ERJ6GCJ334
R2	ERJ6GCJ471
R3	ERJ6GCJ470
R4	ERJ6GCJ681
R5,12,50~52	ERJ6GCJ102
R6,38	ERJ6GCJ101
R7,49	ERJ6GCJ221
R8,9	ERJ6GCJ220
R10	ERJ6GCJ273
R14,33,36	ERJ6GCJ822

Ref. No.	Part. No.
R15,16	ERJ6GCJ472
R31,32,37,45,46	ERJ6GCJ103
R34,35	ERJ6GCJ224
R39,40	ERJ6GCJ332
R41,42	ERJ6GCJ473
R43,44	ERJ6GCJ394
R47,48	ERJ6GCJ3R3

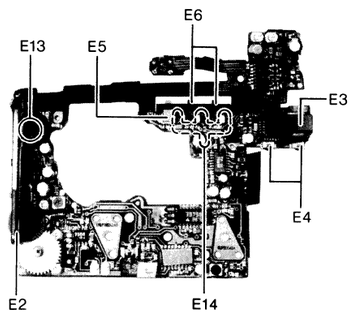
CABINET PARTS LOCATION

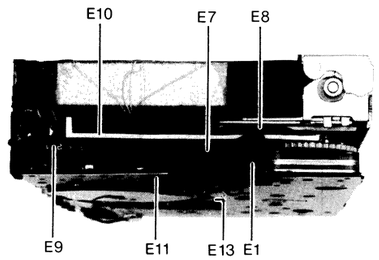


Notes:
[ZK]...For all European areas
except United Kingdom. (Black)
[GK]...For Germany. (Black)

Ref. No.	Part. No.	Part Name & Description
	CABINET PARTS	
K1 [ZK]	RYMXS40Z	Front Cabinet Ass'y
K1 [GK]	RYMXS40ZG	Front Cabinet Ass'y
K1-1	RJC996Z	Terminal Battery
K2 [ZK]	RYPXS40M	Top Cabinet Ass'y
K2 [GK]	RYPXS40ZG	Top Caibnet Ass'y
K3	RYQXS40M	Cassette Panel Ass'y
K3-1	RNW304Z	Washer, FF/REW Button
K3-2	RBC615Z	Button, FF/REW
K3-3	RUS572Z	Spring, FF/REW button
K4	RKK276Z	Battery Cover
K5	RKE480Y	Side Cabinet
K6	RKE481Z1	Slide Cabinet
K7	RUB306Z	Lever, Cassette Panel
K8	XQNR16+A3FN	Screw, Cabinet M'tg
K9	XQSR16+A18FZ	Screw, Cabinet M'tg

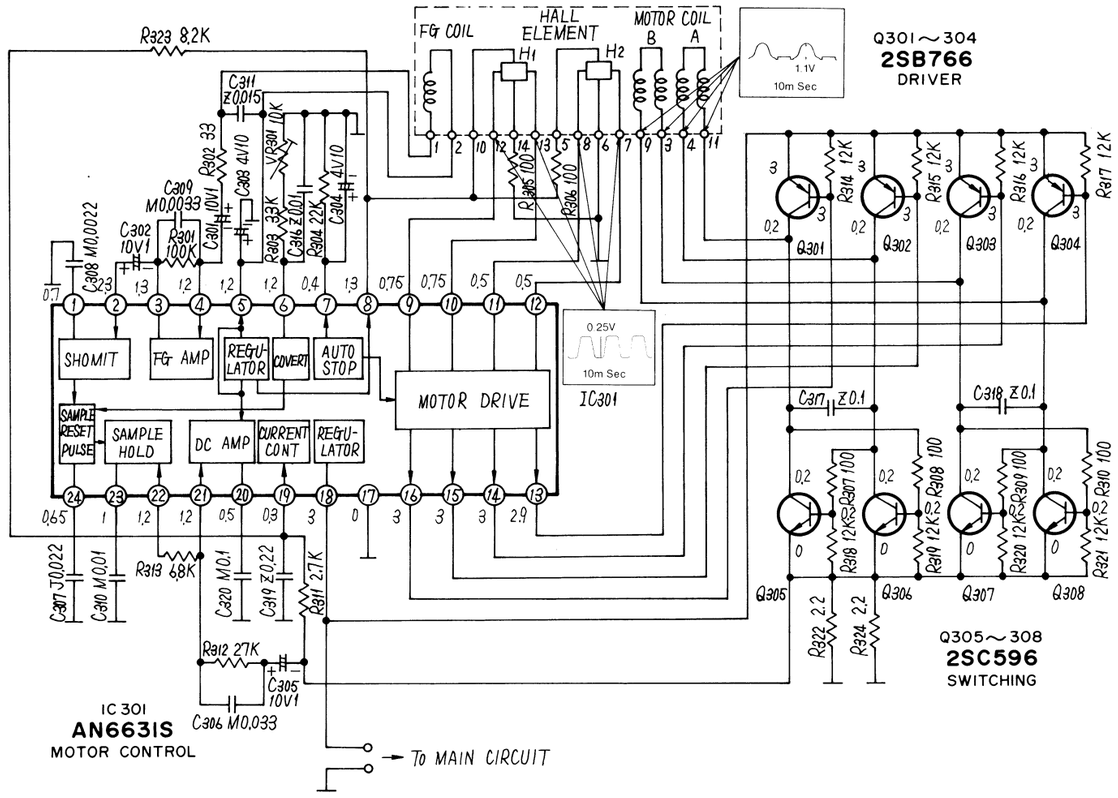
ELECTRICAL PARTS LOCATION





Ref. No.	Part. No.	Part Name & Description
	ELECTRICAL PARTS	
E1	RUA590Z	Dual Chassis
E2	RUA592Z1	Holder, Antenna
E3	RUA591Z	Holder, Jack
E4	RJC994Z	Terminal, Battery
E6	RBD274Z1	Knob, Dolby NR/FM Mode, Tape
E7	RBD275Z1	Knob, Band
E8	RBT208Z1	Knob, Tuning
E9	RBT209Z1	Knob, Volume
E10	RDP260Z	Pointer, Dial
E11	XTNR17+4JFZ	Screw, Antenna Holder M'tg
E12	XQNR16+A25FN	Screw, Print Circuit Board M'tg
E13	XSHR17+2FZ	Screw, Volume Knob M'tg
E14	RMC979Z	Shield Plate

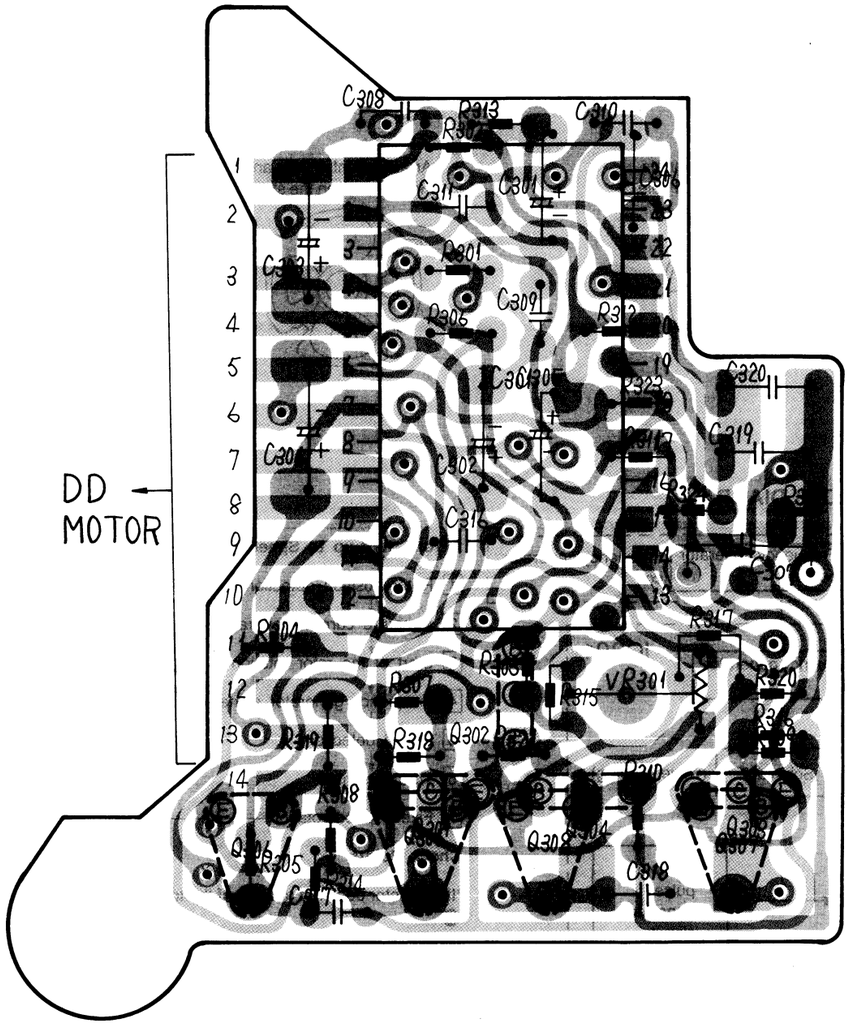
SCHEMATIC DIAGRAM (D • D MOTOR) MODEL RX-S40



Ref. No.	Part. No.	Part Name & Description
IC301	AN6631S	IC
Q301~304	2SB766Q	Transistor (Ge)
Q305~308	2SD596DV	Transistor (Si)
VR301	EVM16GA00B14	Variable Resistor, 10 kΩ (B)

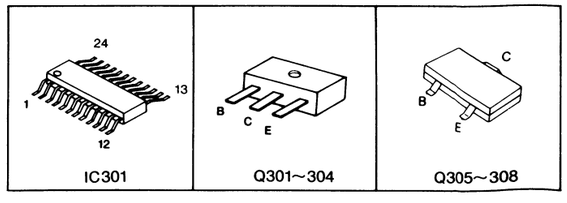
Ref. No.	Part. No.	Ref. No.	Part. No.
R301	ERJ6GCJ104	C7	RCUX1H330KC
R302	ERJ6GCJ330	C301,305	ECSE1AT1050L
R303	ERJ6GCJ333	C302	ECSE1AT1050R
		C303,304	ECSE0GT106R
R304	ERJ6GCJ223	C306	ECUX1E104MD
R305~310	ERJ6GCJ101	C307	ECQV1H223JZ
R311	ERJ6GCJ272	C308	RCUX1H222MD
R312	ERJ6GCJ223	C309	RCUX1H332MD
R313	ERJ6GCJ682	C310	RCUX1E103MD
R314~321	ERJ6GCJ123	C311	RCUX1H153ZF
R322,324	RRD18XK2R2	C316	RCUX1H103ZF
R323	ERJ6GCJ822	C317,318	RCUX1E104ZF
		C319	ECUX1E224ZF
		C320	ECUX1E104MD

CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM (D • D MOTOR) MODEL RX-S40



Notes:

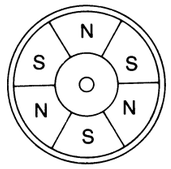
1. The circuit shown in (▭) on the conductor indicates printed circuit on the back side of the printed circuit board.
2. The circuit shown in (▭) on the conductor indicates printed circuit on the front side of the printed circuit board.
3. The symbols (●) shown in the circuit board indicate connection points between conductors on the front side and back side of the circuit board.
4. The symbols (●) shown in the circuit board indicate connection points between conductors on the back side of circuit board.



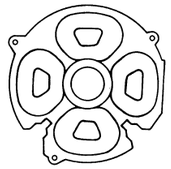
1. Over view of the D.D. Motor Operation

The D.D. motor is constructed so that the rotor unit contains six magnetic poles (3 N poles and 3 S poles) spaced 60° and the stator side is wound with four armature coils spaced 90°.
An N pole or S pole magnetic field is generated by current flowing through the armature coils. The attraction and repulsion of the magnets on the rotor with the magnetic field causes the rotor to rotate. For smooth rotation (in a fixed direction), two Hall devices (90° apart) are installed on the stator plate to detect the rotation of the rotor magnets and to control the direction of current flowing in the armature coils.
*The numberof magnetic poles on the rotor and on the stator are different so that the rotation does not lock from to the attraction of unlike poles (N and S poles, S and N poles).

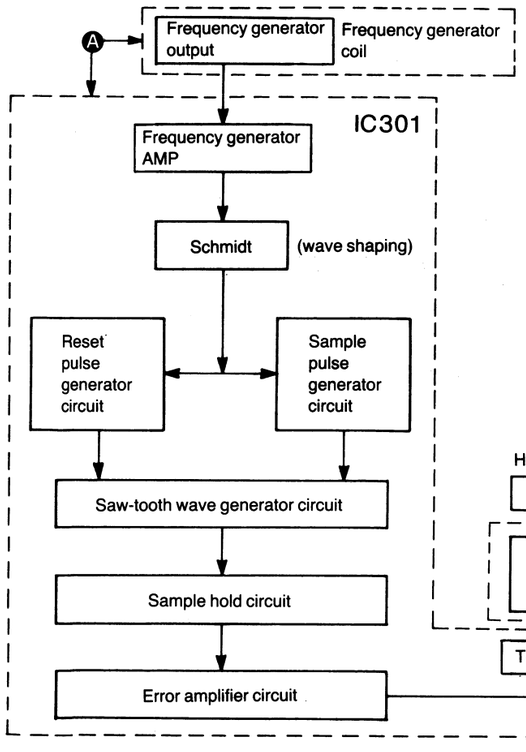
Arrangement of magnets on the rotor Spole, N pole



Arrangement of coils and Hall devices on the stator



2. D.D. MOTOR BLOCK DIAGRAM



•From Start-up to Speed Control of the D.D. Motor

1 Rotor position detection by the Hall devices
2 Armature current generation
3 Start of the rotor rotation
4 Frequency generator signal generation
5 Speed detection
6 Torque control
7 Fixed speed rotation

Check Points

*If the motor does not rotate or if the torque is weak, check circuit Ⓑ.

*If the motor speed cannot be controlled, check circuit Ⓐ.

3. Troubleshooting Procedures

1. D.D. Motor Does Not Rotate At All

1 Check the voltage (3 V) at pin ⑱ of IC301 (AN6631S).
0 voltage → Check the D.D. motor power supply leads and power supply line foil pattern. (Check for cuts in the foil pattern, poorly soldered leads, etc.)
→ Check the operation of leaf switch S5.
*Check the circuit of the main unit.
OK voltage → Are there voltages about 250 mV at both ends of R305 and R306? → Go to 2 if OK.
→ If no, measure the internal resistance on the power supply side of Hall devices H1 and H2. (measue with power off)
OK if the measured value is 150~300Ω, replace the Hall devices is ∞.
If OK, eplace IC301 (AN6631S).

2 Check the voltage at pin ㉑ of IC301.
OK if 1.1~1.5 V.
If 1.6 V or more, there is a problem in the speed detection circuit.
→ Are the parts between pins ①~⑤ and ⑳~㉔ OK? Also, are there any soldering shorts?
→ Rotate the motor by hand and observe the output from pin ③ of IC301 on an oscilloscope.
→ Check between pins ⑳~㉔ of IC301 if ⎍⎍⎍ appears.
→ Check C320 if a saw-tooth wave appears at pin ㉔ of IC301.

2. Motor Rotates Out Of Control (no motor speed control)

Check for breaks in the frequency generator coil or lead wires, etc.
Measure the waveform between pins ④ and ⑤ of IC301. If abnormal, check R302, C301, C303, and C311.

4. AN6631S (IC301): EACH TERMINAL WAVEFORM

① Pin	② Pin	③ Pin	④ Pin	⑤ Pin	⑥ Pin	⑦ Pin	⑧ Pin
1.6 V 0.5 m Sec	1.4 V 0.5 m Sec	1.5 V 0.5 m Sec	1.2 V 0.5 m Sec	1.2 V 0.5 m Sec	1.2 V 0.5 m Sec	0.4 V 0.5 m Sec	1.2 V 0.5 m Sec
⑨ Pin	⑩ Pin	⑪ Pin	⑫ Pin	⑬ Pin	⑭ Pin	⑮ Pin	⑯ Pin
0.8 V 10 m Sec	0.8 V 10 m Sec	0.6 V 10 m Sec	0.6 V 10 m Sec	3 V 10 m Sec	3 V 10 m Sec	3 V 10 m Sec	3 V 10 m Sec
⑰ Pin	⑱ Pin	⑲ Pin	⑳ Pin	㉑ Pin	㉒ Pin	㉓ Pin	㉔ Pin.
Earth	3 V 10 m Sec	0.3 V 10 m Sec	0.6 V 10 m Sec	1 V 10 m Sec	1 V 10 m Sec	1 V 10 m Sec	1.2 V 0.5 m Sec

ACCESSORIES AND PACKING MATERIALS

Part. No.	Part Name & Description
ACCESSORIES	
RD9264M	Headphone
RZXXS40N	Belt Criper
PACKINGS	
RPN4445Z	Pad (Top)
RPN4446Z	Pad (Bottom)
RPK1883Z	Gift Box
RQX4484Z	Instruction Book
XZB10X20A04	Polyethylene Cover

G.A.D. K.S. Z G Printed in Japan